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Empowering Industrial Automation with Virtual Safety, Custom Safe Motion Control and Safe I/O Solutions on display at Automate 2026 in Chicago, IL

In a strategic move to advance functional safety in industrial automation, CODESYS Corporation and MESCO Engineering have announced a collaboration that combines cutting-edge software innovation with expert hardware development.

This partnership aims to deliver scalable, certified safety solutions tailored to the evolving needs of machine and plant manufacturers.

Freedom and Flexibility in Machine Safety Design

According to Thomas Best, CEO of MESCO Engineering, “a machine builder can achieve greater flexibility and independence by using a virtual safety controller in combination with customized safe Motion Control or safe I/O modules. This approach is particularly beneficial when the builder wants to ensure that their customers:

- remain independent of any specific safety controller manufacturer,
- can integrate customized safety sensors and actuators that precisely meet their functional requirements, and
- are able to select I/O modules tailored to the number and characteristics of their sensors and actuators. “

On the safety controller side, CODESYS® Virtual Safe Control is used to provide FSoE and PROFISAFE master functionality without specialized, certified hardware, while MESCO provides or develops the tailored Motion Control or I/O modules according to customer needs using proven safety design packages.

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Virtual Safety Control by CODESYS®

The Virtual Safety Controller from CODESYS is a TÜV®-certified software solution that enables safety logic execution on standard industrial PCs and ARM devices such as the Raspberry Pi 5, without dedicated safety hardware expected to be released in September 2026.

According to CODESYS Corporation President, Markus Bachmann, “this approach reduces hardware manufacturer dependencies, lowers costs, and accelerates time-to-market for safety-critical applications”.

Key features of Virtual Safety Control by CODESYS:

- Certified according to IEC 61508 SIL3
- Provides scalability as it runs on standard industrial PC hardware
- Seamless integration in the CODESYS Development System
- Supports distributed architectures and mixed safety/non-safety environments
- Supports different host architectures

Custom Safe Drive and Safe I/O Modules by MESCO Engineering:

Thomas Best continues, “MESCO Engineering, known for its expertise in custom hardware/software development, complements this software innovation with tailor-made safe I/O modules. These modules can be developed specifically for customer requirements and meet the highest safety standards by using the MESCO Safety Design Packages”.

The capabilities of MESCO Engineering Safety Design Packages include:

- Design and development of safe motion monitoring electronics or safe I/O modules, integration of safe fieldbus interfaces such as FSoE, PROFISAFE and CIP Safety ·
- Support for SIL2/SIL3 electronics
- Full development support from concept to certification

Synergy for OEMs and System Integrators

The joint offering enables OEMs and system integrators to build flexible, scalable, and certified safety systems using virtual controllers and tailored Safe Motion Control or Safe I/O hardware. This reduces dependency on proprietary safety PLCs and opens new possibilities for modular and cost-efficient designs.

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ABOUT CODESYS CORPORATION

CODESYS Corporation is the USA division of the CODESYS Group, providing dedicated sales, support, consulting and training services to our fast-growing customer base in North America (Canada, USA, Mexico).

CODESYS® is a software platform for industrial automation technology. The core of the platform is the IEC-61131-3 programming tool CODESYS Development System. It offers users practice-oriented, integrated solutions for the convenient configuration of automation applications. The goal is to provide them with practical support for their daily tasks.

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#CODESYSNorthAmerica #Automation #VirtualSafety

ABOUT MESCO Engineering

MESCO Engineering, the US-based branch of the MESCO Group, is your development partner specializing in functional safety regarding IEC61508, intrinsic safety, industrial communication, and embedded hardware/software systems. With decades of experience and TÜV®-certified processes, MESCO supports customers in creating reliable and standards-compliant automation products.

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